

**REMARKS**

By this Amendment and Reply, no claims have been amended and no claims are canceled. New claims 47 - 49 were added to claim a subset of the metals recited in claims 1, 38 and 42, respectively. Accordingly, claims 1, 38 and 40 - 49 are presented for examination. No new matter has been added.

Claims 42, 45 and 46 stand rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s) at the time the application was filed, had possession of the claimed invention. Specifically, the outstanding rejection is styled as a new matter rejection.

The specification of the present application provides support for claims 42, 45 and 46 on at least page 10, lines 1-15, and 23-29, alone or together with page 16, Example 4. . Accordingly, applicants respectfully submit that this rejection is untenable and should be withdrawn.

Claims 1, 38, 40, 41, 43 and 44 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,916,947 to Morris et al. Applicants respectfully submit that this rejection is untenable and should be withdrawn.

Morris et al. discloses a particle mixture in powder or slurry form which exhibits antifouling properties when incorporated into a carrier comprising zinc oxide (Col. 2, lines 42-44). Additionally, Morris et al. discloses a “preformulation step . . . which involves either subliming or solvent depositing the photosensitizer over the surfaces of the colloidal zinc oxide prior to suspending the zinc oxide pigment in the vehicle.” (Col. 6, lines 10-14). The vehicle comprises a resin, one or more pigments, a suitable solvent for the resin, and various optional additives. (See Col. 5, lines 55-57).

The photosensitizer disclosed by Morris et al. is preferably substantially insoluble in water, absorbs visible light, and catalyzes the production of peroxides when contacted with zinc oxide, water, oxygen and visible light. (Col. 3, lines 52-56).

In contradistinction, the present invention discloses and claims a biocidal composition comprising composite particles. The composite particles of the present invention contain a shell and a core. The shell of the composite material surrounds the core of the composite particle. The interaction between the shell and the core of the composite particles is disclosed in the specification on at least page 9, lines 6 – 21.

The core of the present invention comprises a metal or a metal-containing compound wherein the metal is a moiety selected from the group consisting of zinc, copper, bismuth, silver, zirconium and combinations thereof. The shell of the present invention contains a metal pyrrhione that is formed **by reaction of** pyrrhione acid or a **water-soluble** salt of pyrrhione with a portion of the metal or metal-containing compound of the core. Morris et al. does not disclose or suggest coating a metal moiety with a water-soluble salt of pyrrhione. On the contrary, Morris et al. discloses coating colloidal zinc oxide with a **water-insoluble** photosensitizer. Accordingly, the coating of the surface of zinc oxide disclosed Morris et al. does not provide a shell wherein the shell comprises the reaction product of a pyrrhione with a portion of the core metal or metal compound.

The inherency argument recited at page 6 of the outstanding Office Action is believed to be untenable. Therein it is stated that the Morris et al “particle complex which possess ingredients within the scope of the present invention would inherently possess the same physical parameters as presently claimed...” Applicants respectfully disagree. Morris et al discloses that patentees’ photosensitizer can be zinc pyrrhione, as opposed to the instantly claimed “water soluble salt of pyrrhione”. Since the zinc pyrrhione photosensitizer cannot transchelate with the zinc oxide disclosed in that reference, there can be no reaction at the interface of those two compounds in view of the common zinc ion present in both.

It should be readily apparent that the chemical attributes of the instant composite particles are different from those of a colloidal zinc oxide physically covered with (as opposed to chemically reacted with) a photosensitizer because the instant shell comprises the reaction product of pyrrhione with a portion of the core. While zinc oxide and zinc pyrrhione of the Morris et al. reference may provide a physical combination, they cannot react to provide a reaction product of pyrrhione with core metal as instantly claimed. Further

Morris et al provides no suggestion or teaching in favor of such a chemical reaction. Accordingly, the instantly claimed composite particles are not disclosed or suggested by Morris et al. Therefore, Applicants submit that the instant rejection of the claims under 35 U.S.C. §102(e) is untenable and should be withdrawn.

Claims 1, 38, 40, 41, 43 and 44 were rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6, 162,446 to Hani et al. Hani et al. discloses a personal care composition that comprises: (a) water or an alcohol, (b) at least one dispersant or surfactant and (c) particles of an in-situ transchelation reaction product of a zinc compound that is soluble in said water or alcohol with pyrithione acid or a pyrithione salt that is soluble in said water or alcohol. The zinc compound is selected from the group consisting of zinc salts of organic acids, zinc salts or inorganic acids, zinc hydroxide, zinc oxide and combinations thereof.

Hani does not disclose any transchelation in the absence of the dispersant or surfactant required by that reference, much less one to produce a composite particle with a portion of the metal core being reacted with the soluble pyrithione salt disclosed in that reference. To the contrary, Hani discloses an in-situ reaction whereby the dispersant or surfactant stabilizes the solid particles of metal pyrithione that are formed in the Hani personal care composition. Accordingly, the rejection of the claims over Hani is believed to be misplaced and should be withdrawn.

Claims 1, 38, 40, 41, 43 and 44 stand rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,465,015 to Mohseni et al. Applicants respectfully submit that this rejection is untenable and should be withdrawn. Mohseni et al. discloses a method for making a suspension, dispersion or emulsion of non-agglomerated particles. The working examples disclosed in Mohseni et al. teach how to make a salt of a pyrithione particle by precipitation of an insoluble pyrithione out of a solution of soluble pyrithione salt. Such precipitation is not suggestive of the present invention.

Mohseni et al nowhere discloses composite particles of any kind, much less composite particles with a metal core and pyrithione salt shell wherein the metal in the shell is formed from the reaction with core metal as instantly claimed. Thus, the composite particles of the

present invention contain a shell and a core. The shell of the composite material surrounds the core of the composite particle as discussed above. Since Mohseni et al. does not suggest or disclose the instantly claimed particle configuration, much less how to prepare it, the outstanding claim rejection based upon this reference is untenable and should be withdrawn.

The inherency argument presented on page 9 of the outstanding Office Action based upon Mohseni et al is believed to be untenable since the chemical attributes of the instant composite particles are different from that of simple insoluble metal salts of pyrithione. Accordingly, the instantly claimed composite particles are not disclosed or suggested by Mohseni et al, and this rejection should be withdrawn.

Claims 1, 38 and 40-46 were rejected under 35 USC §103(a) as being unpatentable over Morris et al., Hani et al., or Mohseni et al. and further in view of U.S. Patent No. 5,518,774 to Kappock et al. Applicants respectfully submit that this rejection is untenable and should be withdrawn.

The outstanding Office Action acknowledges at page 11 thereof that Kappock teaches that if zinc is employed as the metal, the amount of zinc compound should be optimized to enable complete conversion of the pyrithione salt to the zinc salt of pyrithione. In other words, all of the soluble pyrithione salt, e.g., sodium pyrithione, is converted to zinc pyrithione in accordance with the teachings of Kappock. These teachings of the reference do not suggest the formation of any composite particles, much less those as instantly claimed.

The other relied-upon references have been discussed above. The rejection based upon the combination of these references is untenable since the result sought to be achieved by virtue of the combination runs counter to the teachings of the individual references. For example, Morris et al teaches away from transchelation of any kind, much less that of the instantly claimed product, by virtue of patentees' disclosure of a common ion (zinc) for the metal and for the pyrithione salt. Contrariwise, Kappock teaches complete transchelation of zinc with a soluble pyrithione salt to produce an insoluble pyrithione salt, namely zinc pyrithione. Accordingly, there is no motivation to combine these references since the teachings of one run counter to the teachings of the other reference. Accordingly, the rejection of the instant claims based upon that combination is believed to be untenable and

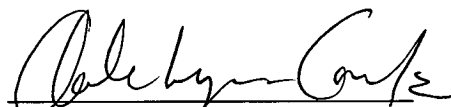
should be withdrawn. In this regard, it is further noted that new claims 47-49 recite metals not suggested in the references.

Applicants submit that, absent a motivation to combine the references, a prima facie case of obviousness is lacking. For a prima facie case of obviousness to exist, there must be some objective teaching in the art or knowledge generally available to lead one of ordinary skill in the art to combine the references. See *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). Since no such motivation has been established by virtue of the outstanding Office Action, it is respectfully asserted that a prima facie case of obviousness has not been established. Further, Applicants submit that none of the references, alone or in combination, anticipate or make obvious the invention as presently claimed and that the application is now in condition for allowance.

Applicants believe that all claims are now in condition for allowance. To expedite prosecution the Examiner is invited to contact Applicant's attorney at the telephone number listed below.

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Respectfully submitted,  
David F. Gavin, et al.



Signature of Attorney  
Dale Lynn Carlson  
Reg. No. 28,784  
WIGGIN and DANA LLP  
One Century Tower  
New Haven, CT 06508-1832  
Telephone: (203) 498-4385  
Facsimile: (203) 782-2889

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